I claim:

1. A high performance propulsion muffler comprising:

a shell with an expansion chamber tube coaxially attached to the shell such that an interior of the shell and an exterior of the expansion chamber tube form a sound suppression sleeve containing sound suppression material,

wherein an interior of the expansion chamber tube forms an expansion chamber,

the expansion chamber tube is perforated with apertures to achieve about 40-80% porosity, such that the expansion chamber is in communication with the materials in the sound suppression sleeve,

an inlet tube is attached to an inlet of the shell such that an inlet tube interior is in communication with the expansion chamber, wherein a rotatable propeller is attached to the muffler such that the propeller is capable of rotation when exhaust gas passes from the inlet tube into the expansion chamber, and

wherein the propeller spins the exhaust gas to facilitate its passage through the expansion chamber, and through an outlet in the shell.

2. The high performance propulsion muffler according to Claim **1**, wherein the propeller is mounted on a teflon-filled bronze bearing that is rotatably mounted on a shoulder screw.

3. The high performance propulsion muffler according to Claim **1**, wherein the propeller is mounted on a shoulder screw that is rotatably mounted in a teflon-filled bronze bearing.

4. The high performance propulsion muffler according to Claim **1**, wherein the expansion tube has at least about 85% greater flow cross-sectional area than the inlet tube.

5. The high performance propulsion muffler according to Claim **1**, wherein the expansion tube has between about 75% to about 90% greater flow cross-sectional area than the inlet tube.

6. The high performance propulsion muffler according to Claim **1** that improves the fuel efficiency of an engine between about 5 to about 12 percent in city driving and between about 6 to about 15 percent in highway driving relative to a standard muffler.

7. The high performance propulsion muffler according to Claim **1** that improves the fuel efficiency of an engine at least about 5 percent in city driving and at least about 6 percent in highway driving relative to a standard muffler.

8. The high performance propulsion muffler according to Claim **1** that improves the power output of an engine at least about 13 percent relative to a standard muffler.

9. The high performance propulsion muffler according to Claim **1** that improves the power output of an engine between about 13 to about 19 percent relative to a standard muffler.

10. The high performance propulsion muffler according to Claim **1** that improves the fuel efficiency of an engine between about 5 to about 12 percent in city driving, and between about 6 to about 15 percent in highway driving, and improves the power output between about 13 to about 19 percent relative to a standard muffler.

11. A muffler comprising an inlet tube, an expansion chamber and a rotatable propeller, wherein an inlet tube interior is in communication with the expansion chamber and the propeller is attached to the muffler such that the propeller is capable of rotation when exhaust gas passes from the inlet tube into the expansion chamber.

12. The muffler according to Claim **11**, wherein the propeller is attached within the expansion chamber, proximal to the inlet tube by an axis mount to a propeller support mounted within the expansion chamber.

13. The muffler according to Claim **11**, wherein the propeller is attached within the inlet tube by an axis mount to a propeller support mounted within the inlet tube.

14. The muffler according to Claim **11**, wherein the propeller is attached to the inlet tube by an axis mount to a propeller support mounted at a proximal end of the inlet tube.

15. The muffler according to Claim 11, wherein the expansion chamber comprises an expansion chamber tube having a porosity of at least about 50 percent.

16. The muffler according to Claim 11, wherein the expansion chamber comprises an expansion chamber tube having a porosity of between about 40 percent to about 80 percent, and an exterior of the expansion tube forms a sound suppression sleeve with an interior of an outer shell, and the sound suppression sleeve is filled with sound suppression materials selected from the group consisting of fiberglass, glass wool, copper wool, copper strands, steel wool and a combination thereof.

17. The muffler according to Claim 11, wherein the expansion chamber comprises an expansion chamber tube having a porosity of between about 40 percent to about 80 percent, and an exterior of the expansion tube forms a sound suppression sleeve with an interior of an outer shell, and the sound suppression sleeve is filled with sound suppression materials selected from the group consisting of fiberglass, glass wool, copper wool, copper strands, steel wool and a combination thereof, and the expansion tube has a flow cross-sectional area of at least about 85% greater than that of the inlet tube, wherein, relative to a standard muffler in an engin, the muffler improves fuel efficiency by about 15% in highway driving and by about 12% in city driving, and improves power output by about 19%.

18. A method of improving the performance of an internal combustion engine muffler comprising:

attaching a rotatable propeller proximately to an inlet of an expansion chamber within the muffler; and

rotating the propeller when exhaust gas passes from the inlet into the expansion chamber.

19. The method according to Claim 18, wherein the improved performance is an about 5 to about 12 percent improvement in city driving fuel efficiency, an about 6 to about 15 percent improvement in highway driving fuel efficiency, and an about 13 to about 19 percent improvement in power output.

20. The method according to Claim **18**, wherein the improved performance is an at least about 5 percent improvement in city driving fuel efficiency, an at least about 6 percent improvement in highway driving fuel efficiency, and an at least about 13 percent improvement in power output.